

Request for Quote (RFQ) for a
Single-frequency high-peak-power pump laser for parametric generation

NASA Goddard Space Flight Center, Code 694

8/24/2015

A. Background .

NASA Goddard Space Flight Center (GSFC) Laser Remote Sensing Branch (694) is currently seeking a quote for the delivery of specialized laser not to exceed \$180K.

NASA-GSFC requires a single-frequency high-peak-power pump laser for parametric generation to be used for use in both laboratory and field (ground and airplane) environments. The single-frequency high-peak-power laser will be used in a lidar instrument to measure methane from an airborne platform. The desired specifications for the laser are listed below.

B. This RFQ

The purpose of this RFQ is to solicit a quote from industry for the delivery, of a specialized laser. The goal of this RFQ is to insure that the best and widest possible set of capabilities is considered for immediate applications and potential uses for future space flight missions. Success may lead to long-term NASA-industry partnership opportunities. This RFQ in no way constitutes a commitment or guarantee of future funding opportunities from NASA.

The quote with pricing and delivery information should be submitted to NASA (point of contact is listed below). The delivery should not exceed 6 months ARO.

Point of Contact: (E-mail is preferred):

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Laser Remote Sensing Branch, MC 694
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Submission Deadline: September 3rd, 2:30 pm EST. Interested vendors are invited to submit a quote for a laser that meets the following specifications:

Specifications

Parameter	Specification
Center Wavelength	1030 nm
Beam Quality	$M2 \leq 1.1$
Trigger/Q switch type:	Fiber laser. Active-Q switch and/or Trigger in or out should be available. Seed laser modulation trigger should be available – exact time delay is negotiable but cannot be too long.
Timing jitter (wrt the trigger signal)	Less than the pulse width (e.g. <30ns)
Pulse extinction ratio (ON/OFF)	<0.5%
Pulse repetition rate	10 KHz
Linewidth (Spectral purity)	Single longitudinal mode, transform limited.
Polarization	Linear
Output polarization extinction ratio (PER)	>15 db; 17 db preferred
Beam diameter	3-5 mm collimated with telescope -- free space output. Location of beam output is negotiable.
Beam pointing stability	$\leq 10 \mu\text{rad}$ (1-s) over 10000 shots. Some dependence with temperature is expected.
SBS-free pulse energy	1 mJ minimum; higher energy 1 to 2 mJ desired.
Pulsewidth	10ns-50 ns. Shorter pulse preferred to maximize the peak power
Pulseshape (temporal)	Prefer “top-hat” but Gaussian pulse shape also acceptable
Output Optical Isolation	30 dB
	>30dB
Built in shutdown protection	yes
Operating conditions	Standard lab environment (10 to 30 °C) and commercial aircraft cabin environment.
Size	Approximately 450(W) x 400(D) x 145(H) mm (optical module only, not including a separate control unit). Control Unit: smaller than optical module. Should be able to disconnect control unit from optical module for transportation. Both optical module and control unit can be mounted on a standard 19” rack.
Warm up time	10 minutes
Power Supply	AC 110-120V 60 Hz
Cooling system	Water cooling acceptable. Flow rate TBD.

Computer interface	USB or IEEE 488.2 or equivalent for setting and reading laser parameters
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